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Western culture frequently sees chimpanzees as intelligent creatures, capable of being trained, learning sign language, forming bonds with each other and even with humans. People visit zoos and watch with amazement as chimpanzees exhibit human-like characteristics such as making faces, using tools, becoming excited, angry and scared, and caring for their babies. Their size, mannerisms, eyes and hands remind us so much of ourselves as we stare in awe and wonder what they are thinking. Could they be thinking the same thoughts about us? It is not a coincidence, after all, that we see such similarity in them. They are our closest relatives in the entire animal kingdom, as chimpanzees share 99% of the same DNA with humans.

Most people are appalled when made aware of the strong possibility that chimpanzees may become extinct in the wild in our lifetimes. At the same time, we accept the use of chimpanzees for medical research because of their genetic similarity to humans (Goodall, 1995). So close are the two species that chimpanzees are used in infectious disease laboratory research because chimpanzees can catch or be infected with all known human infectious diseases (with the exception of cholera) (Jane Goodall Institute, n.d.).

This western view of chimpanzees as sentient beings worthy of protection and conservation, however, is not unanimously shared. In their natal African countries,

chimpanzees and humans coexist in very different ways. Chimpanzees are often seen as distant, neutral, forest-dwelling animals, that are not problematic until human “space”—as defined by people—is entered. Perhaps this is the same way that Americans might view mountain lions, or birds of prey, or the way that Australians might view kangaroos. When interactions between chimpanzees and humans in Africa become too antagonistic, for example, when the animals raid crops for food, chimps are thought of as pest species (Hill, 2002; Naughton-Treves *et al*, 1998). In other circumstances chimpanzees have an important nutritional value and serve as a vital source of protein. In still other circumstances, eating chimpanzee meat is strictly taboo, although such a taboo may not preclude the hunting of chimpanzees if they are considered pests.

#### Chimpanzees: Imminent Extinction?

Chimpanzees exhibit a number of inherent biological, ecological and behavioral characteristics that make them especially susceptible to extinction. Whereas other wildlife species may be able to tolerate hunting and habitat degradation to a certain extent, chimpanzees cannot. There are only about 150,000 chimpanzees spread across 21 African nations. Their reproductive and life history parameters, extensive habitat and diet requirements, and genetic similarity to humans suggest that conservation efforts should pay particular attention to these factors when devising protection strategies .

Relative to other mammals, all primates have very slow individual growth rates, birth rates, and death rates; these rates are one fourth to one half those of other mammals of similar body size (Charnov and Berrigan, 1992). Chimpanzees, in particular, have an infant stage that spans 60 months, with the average weaning age at 48 months. Chimpanzee females do not give birth until they are 14 years old; even then, females

have only 41% chance of surviving to that age (Hill *et al*, 2001). Once conception is achieved, gestation lasts for 240 days. Female chimpanzees can conceive until about age 43 (Ross, 1991). With the long infancy period and delayed weaning, the birth interval is long, approximately 5 years. Even if the infant dies (40-60% of all infants die before age 5) the mother does not conceive again for almost 2 years on average (Tai data: Boesch and Boesch, 2000). In an extensive study of five chimpanzee study populations, Hill *et al* (2001) found that wild chimpanzees have a reproductive rate of .8- well below replacement capacity.

These parameters tell us that chimpanzees are long-lived species who depend on both immediate family and group members for survival. Like humans, chimp babies rely on their mothers for years, and bonds between family members are strong. Another important aspect of chimpanzee behavior is the fission-fusion aspect of social organization. Chimpanzees may associate with large groups, but they may also regularly split off into subgroups, or parties. Parties primarily consist of males, as females transfer from their natal group to another group, and thus do not maintain strong ties with their female family members (Williams *et al*, 2002). Females also frequently spend time foraging alone.

Chimpanzees have a fairly large home range of approximately 1,250 hectares (Wrangham, 1977), but this is actually quite varied. For example, populations in densely wooded regions use 5-38 km<sup>2</sup> (500-3,800 hectares), compared to populations in sparsely wooded areas who use 25-560 km<sup>2</sup> (2,500-56,000 hectares) (Nishida and Hiraiwa-Hasegawa, 1987). Ensuring the availability of adequate home range areas ensures that there will be enough genetic flow between groups and to prevent inbreeding.

These aspects of the chimpanzee social system and range requirements have important implications for long-term field research and conservation efforts: Temporary absences by individuals may not be accounted for in cross-sectional studies commonly used for conservation assessment. Aspects of chimpanzee habitat use and range size are more accurately determined through longitudinal studies (e.g. Gombe, Mahale and Kibale) whereby the flexibility of group size and composition can be monitored and recorded (Boesch and Boesch, 2000).

In light of these innate biological and ecological aspects which render chimpanzees particularly susceptible to extinction, conservation research needs to explore human perceptions of and behaviors towards chimpanzees in their natural habitats in Africa, and how they affect chimpanzee survival. If international conservation programs are going to succeed in protecting chimpanzees in the wild, they must take into account the relative value systems and perceptions of those human populations living around and sharing resources with chimpanzees, as well as the resulting behaviors which are detrimental to chimpanzees. We suggest that perceptions and behavior towards chimpanzees, just as towards any other wildlife species, depends on the costs and benefits of interactions between the species as well as the level of competition for resources (Weladji et al, 2003; Gillingham and Lee, 1999).

### Ethnoprimateology

Ethnoprimateology is the study of “intimate” relationships between humans and primates in the primates’ natal habitat (Fuentes and Wolfe, 2002). Intimate does not necessarily mean friendly, or even neutral. Antagonistic, yet close, relationships between

humans and primates (and any other animal, for that matter) are found whenever there is conflict over space or resources.

Examples of intimate, non-contentious relationships between humans and primates abound. Usually, there is a value tied to the primate; the value may be religious, ecological, economic, or the primate may even be given an intrinsic value in their own right. In these situations, there is some valuable benefit from associating with, and effectively protecting, the primate. For example, Cormier (2002) found that among the Guaja people of Brazil, monkeys form not only a significant part of their diet during the rainy season, but also part of their cultural identity. Monkeys are kept as pets and serve as a fertility symbol for the women who care for them. Pet monkeys are also valuable tools for adolescent boys, who learn the monkey calls and become better hunters when they get older. Cormier suggests that Guaja both eat and keep monkeys, illustrating a unique cultural cosmology that emphasizes common kinship and a “like eats like” philosophy. This philosophy ensures the survival of the primate by balancing dietary and cultural needs.

Quite a different example of an intimate relationship between humans and primates comes from Sicotte and Uwengeli’s 2002 study of mountain gorillas in the Virunga mountains of Rwanda. In an attempt to inform gorilla conservation programs, Sicotte and Uwengeli assert that it is necessary to understand the Rwandan view of nature in terms of the forest ecosystem and its inhabitants. They found that people were actually fearful of the forest, and thus have traditionally had very minimal contact with the gorillas. Gorillas were found to be absent from traditional stories, as well as from the people’s diet. Any primate meat, in fact, was said to be “dirty.” People perceived

gorillas as smart, self-controlled, quiet animals. Gorillas were not seen as vermin, as they did not raid agricultural crops. Sicotte and Uwengeli's study does not illustrate an antagonistic relationship, but rather a neutral, somewhat disaffected relationship.

These two examples illustrate the ways in which humans can and do coexist with primates. For the Guaja, the primates are entwined in cultural ideologies as well as in their diet. For the people near the Virunga's of Rwanda, primates occupy a more distant space in their culture. The gorillas are quiet, non-intrusive, and thus generally absent from cultural and nutritional aspects of human life. Here, it is clear that there are different costs and benefits of interacting with primates in each setting. What, then, are the costs and benefits associated with human-chimpanzee relationships? Research reveals that relationships are different in West and Central Africa than they are in East Africa. This stems from a different utility of chimpanzees in each geographic area.

#### Humans and Chimpanzees in Africa

There are a few records of intimate, positive relationships between humans and wild chimpanzees in Africa. Peterson and Goodall (1993a) describe a traditional story in the Ivory Coast in which a chimpanzee saved a lost child in the forest, which then rendered the chimpanzee sanctified. As a result, in some villages chimpanzees are a sacred totem and are thus not eaten. Chimpanzees are hunted, however, in other parts of the Ivory Coast. Peterson and Goodall (1993a) also assert that when the Batoro tribe migrated to areas near Kibale Forest, Uganda, chimpanzee hunting decreased although previously it had been a subsistence activity. The Batoro do not eat chimpanzee meat, and apparently will not even eat from the same plate or drink from the same cup of a person who does. Even with this cultural aversion to eating chimpanzees, the Batoro may

inadvertently harm the chimpanzees with their nets and snares used to catch other types of wildlife for food.

While few traditional chimpanzee stories are known, there is substantial local human knowledge of chimpanzee ecological and economical value. The difficulty lies in discerning the costs and benefits of either maintaining a relationship with chimpanzees that supports their ecological survival and value, or one in which the species' economical value is so high that pressure is put upon their ecological value. Examples of regional disparity illustrate the complexity of interactions between chimpanzees and humans, and how the species' value is diminishing as human needs are being unmet.

#### *The Bushmeat Crisis in West and Central Africa*

Wild forest animals that are hunted and eaten are referred to as 'bushmeat.' The 'bushmeat crisis' refers to the illegal and unsustainable hunting of many of these forest animals, and is considered the most significant threat to central and West African wildlife (Bushmeat Crisis Task Force, 2000). Primates make up 15% of the bushmeat trade. Great apes make up approximately 1%, although this may be underestimated, as meat is cut up into indeterminable pieces at the market (Bushmeat Crisis Task Force, 2000).

Peterson and Goodall recall (1993a; pg 58) an anecdote told by a Gambian conservationist:

“Before the Europeans came, Africans traditionally believed that at one time chimps had been human. But then a group of people were cursed by Allah for fishing on a sacred day and banished to the forest- they became chimpanzees. Africans didn't hunt chimps until the Europeans came and taught them that they could make money by killing chimpanzee mothers and selling their babies.”

In Gambia, and other west African countries, hunting chimpanzees *for profit* began and exponentially increased with the introduction of European market pressures.

But it is important to understand that the hunting of bushmeat is not inherently wrong. As Peterson and Goodall (1993a) explain, “eating meat is as old as Africa.” A clear illustration of this is the Bantu word, *eyama*, and variations of this word (*yama*, *ama*) which means both wildlife and meat (Quammen, 2003). Eating meat derived from hunting wild animals was a normal (perhaps even more normal than eating domestic meat), culturally accepted, and relevant subsistence activity in many African cultures; it is the *unsustainable* nature of the activity, with increasing populations, growing demands, and more efficient hunting methods, as well as the *risk of extinction* for many wild animals that has created a crisis situation. Now, there is no place in Africa where the hunting of chimpanzees is sustainable, whether it is for profit or sustenance.

The causes of such unsustainability are complex, but one major factor is the increase in commercial logging throughout West and central Africa, whereby roads are cut through previously intact forests, and trucks and workers pass through area full of protein-rich animals. Hidden from forest guards these workers capitalize on the dietary opportunity to hunt wild animals. Unfortunately, such reliance on bushmeat for protein has created major pressure on the animal populations. While the loggers still need a source of protein, the animal sources they have come to depend on are not longer substantial enough to support the activity. In this case, chimpanzees are seen as an important, perhaps vital, source of food.

In areas where hunting bushmeat has become an industry for profit, not just sustenance, it is highly probable that people are desperate for food and are willing to hunt *and buy* bushmeat, regardless of the fact that the system is unsustainable and depletive. Trefon (1997) states that urban populations in central and West Africa are growing at 2-

4% per year; yet, many urban families view livestock such as cattle, goats and chickens, as savings and assets rather than a food source. Given this preference for non-livestock protein, as long as there are chimpanzees in the forest, and inadequate laws to protect them, they will remain in the bushmeat market.

While chimpanzee conservation is intrinsically entwined with the larger issue of poverty alleviation, research shows that increases in wealth continue to be associated with increases in the demand for wildlife. Yet, there are ways, however daunting, in which the bushmeat crisis can be alleviated. The extinction of chimpanzees and other vulnerable bushmeat animals is directly related to expanding human populations, poverty, and food scarcity. Rowcliffe (2002) argues that entirely preventing hunting is not feasible nor ethically acceptable, as entire populations of humans rely on the activity for food. Therefore, it is essential to address human conditions and needs as part of a plan to protect the conditions and needs of chimpanzees.

Ling *et al* (2002) suggest that solutions must involve a complex reorganization of conservation policy to include enforcement and human livelihood development; this will involve biology, economics, anthropology, and other disciplines that understand the age-old dilemma of common-pool resources and the tenuous interaction between humans and their environment. Robinson and Bennett (2002, pg. 332) argue that “the only way out of this crisis will be offered by long-term, integrated efforts that provide alternative sources of protein and income for the rural poor, curtail the commercial trade in wildlife, secure wildlife populations in protected areas, educate hunters and buyers, and involve government, the not-for-profit and the private sectors.” In other words, people have to

*perceive* that they have easier, cheaper, and better options for protein consumption and income generation.

### *Crop Raiding and Habitat Overlap in East Africa*

There is yet another chimpanzee ‘crisis’ developing in East Africa. In Tanzania, Kenya and Uganda, chimpanzees face habitat destruction and human-conflict on the borders of agricultural lands and forest borders. Although chimpanzees are not hunted and sold in markets with the regularity found in West and central Africa, the conflicts between humans and chimpanzees can be just as intense because they involve natural resource competition and scarcity. Interestingly, Boesch and Boesch (2000) suggest that one of the reasons why the hunting and eating of chimpanzees has remained minimal in East African countries is that there is heavier Islamic religious influence in these areas than there is in West and central Africa. According to the Islamic tradition, killing animals for food requires special hygienic measures, which may be too inconvenient for hunters to conduct.

Peterson and Goodall (1993a) argue that East African chimpanzees, like chimpanzees in West and Central Africa, are susceptible to shamanistic purposes. They explain an incident in Uganda where crop-raiding chimpanzees were killed and then, with the exception of their brains, were fed to dogs. The chimpanzee brains were sold to a shaman who believed the brains would speed the healing of broken bones.

A well known example of chimpanzee-human interactions is found in and around Budongo Forest, Uganda. This large forest is home to 600 chimpanzees, 40 of which have been closely studied for the last 15 years (Reynolds, 2005). Villages around Budongo are primarily inhabited by subsistence farmers. Their crops, however, often

border the forest, creating a tempting new food source for chimpanzees, baboons, and other primates. Watkins (in press) found that people living in Nyakafunjo village actually had a positive perception of chimpanzees, primarily because the people identified with chimpanzee behavior: chimpanzees share their food with each other, nurture their babies, groom, fight, scream, sleep- all behaviors found in our own selves. Not coincidentally, crop raiding by chimpanzees is minimal in this village. Kiwede (2001) found that subsistence farmers in the area also viewed chimpanzees as “well-behaved,” but that farmers growing sugarcane as a cash crop viewed chimpanzees as serious vermin. For these farmers, the costs of allowing chimpanzees to eat the crop are simply too high; eaten sugarcane represents a real monetary loss. This represents a growing problem for the chimpanzees of Budongo and surrounding forests, as the sugarcane industry is lucrative and growing fast (Reynolds, *et al*, 2003; Reynolds, 2005).

Dunbar and Barrett (2000) argue that apes are often perceived as being aggressive simply because of their large size, and are killed out of fear in order to get rid of what people perceive to be a dangerous enemy. This fear is unfortunately becoming a reality in a small forest fragment near Budongo. Although the habitat of Kasokwa Forest Reserve is quite different than the intact, dense Budongo Forest- it is a mere 73 hectare riverine fragment- the 13 Kasokwa chimpanzees exhibit the same human-like behaviors as any other group of chimpanzees. However, crop raiding and face-to-face interactions with humans are much more of a problem in Kasokwa than in Budongo. Kasokwa is one of a number of forest fragments that are separated by degraded forest edges, village settlements and subsistence crops. The borders of such fragments are becoming increasingly pressured by sugarcane crops. This, in turn, has promoted an increase in

chimpanzee crop-raiding, as well as incidences where chimpanzees have seized human infants who have been left unattended near the borders of subsistence crops and the forest edge (Reynolds, *et al*, 2003; Reynolds, 2005).

In these cases, the perception of chimpanzees varies with the extent of negative interaction. The solution to the problem of chimpanzee endangerment in these areas is similar to those in bushmeat-ridden countries: Reduce the costs and increase the benefits of coexisting with chimpanzees. Perhaps this means buffering cropland with plants distasteful to chimpanzees; perhaps it means mandating a large enough “no-crop zone” around the perimeter of the chimpanzee’s forest habitat. For this to happen, however, local people must be able to acquire wood and water, once obtained from the forest, from another source. Many of Robinson and Bennett’s solutions also apply, such as providing alternative sources of resources and income, stabilizing the commercial trade of forest resources, educating local people, and involving all levels of support, including the government, the not-for-profit and the private sectors.

### Saving Chimpanzees

If you do not live in Africa, why is it important to care about the survival of chimpanzees? There are three reasons: One is the human dimension. When animals are threatened, it is almost always linked to a human problem. Endangered animals can be ecological signals that humans are behaving in unsustainable, environmentally and ecologically-detrimental ways.

The second reason to care about chimpanzee survival is that they are our closest living relatives. The impact of their survival spans the globe, into universities and research facilities where behavioral, and evolutionary research is being conducted. We

can learn an immense amount about ourselves through the study of chimpanzees. As western zoo visitors and native Africans alike have seen, chimpanzees exhibit physical and behavioral traits that illustrate just how close they really are to humans: tool use, culture and warfare are prominent features of chimpanzee society. Losing wild chimpanzees would be a huge loss to many scientific disciplines.

The third reason is for the sake of the chimpanzees themselves. If you subscribe to the idea that humans are indeed connected to the rest of the natural world, then you would be hard-pressed to ignore the demise of any species. Peterson and Goodall (1993b) argue that “changed attitudes can lead not only to changes in our personal lives, but also to policy changes at the corporate and governmental level.” Support for both formal and environmental education, poverty alleviation programs, and environmental protection initiatives are all crucial for the survival of chimpanzees.

Unfortunately, Stanford (2004) correctly argues that the Bushmeat crisis (and we would also add deforestation) has become only one of a myriad of environmental and social causes connected to the survival of the chimpanzee. With so many causes vying for attention and support, chimpanzee conservation must rely on the fact that the plight of the species is deeply intertwined with the plight of humans in Africa. Although Quammen (2003) argues that this is inherently an “African issue,” we as an international community have an obligation to inform ourselves about impending wildlife extinctions, and their root causes.

What can you do, from an individual standpoint? If you are a student, you can inform yourself through reading, writing papers, holding discussions, and even forming forums in which to discuss these issues. Consider joining Roots and Shoots, an

environmental organization founded by Dr. Jane Goodall. If you are not formally in school, the above options remain open; everyone has the right and responsibility to be knowledgeable about contemporary issues, both local and global. Don't support circuses and other entertainment sources which exploit chimpanzees for profit; DO support your local zoo's efforts to care for their chimpanzees and to educate the public about their plight. Be a conscious consumer by buying products that do not destroy forests; DO buy international products that help local populations make alternative, environmentally-sustainable livings. At the very least, you can begin to "put yourselves in the shoes" of the Africans living amongst the chimpanzees, and try to think about their basic needs, livelihoods, and the strategies they use to survive. From a conservationist's point of view, optimism, not pessimism, realism, not despair, and global-mindedness, rather than narrow-mindedness, are crucial to the continued search for successful chimpanzee conservation.

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